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10/005,494	11/06/2001	Kazuo Kobayashi	P6121a	7990

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EPSON RESEARCH AND DEVELOPMENT INC  
INTELLECTUAL PROPERTY DEPT  
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EXAMINER

SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2673

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DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/005,494

Applicant(s)

KOBAYASHI, KAZUO

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingo (JP 11-149278).

As to claim 1, Shingo teaches a display driver apparatus for driving a display comprising a plurality of pixels, each of which is located at a respective one of a plurality of intersections formed between one of a plurality of common electrodes ( 240 scanning lines) and one of a plurality of segment electrodes (320 signal lines), wherein an orientation state of an electro-optical material of each pixel is controlled by a voltage applied to it (See Drawing 1, item 10, in Detailed Description See paragraph 0007), the display driver apparatus comprising: a common

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electrode drive device (scanning line driver 30) that supplies a scanning signal for simultaneously selecting  $L$  (4) common (scanning) electrodes, where  $L$  is natural number and  $L \geq 2$  (display could not be made with one scanning electrode) (See Drawing 3A, item 1-4, in Detailed Description See paragraphs 0029); a segment electrode drive device (signal-line driver) that supplies a data signal to each of the plurality of segment (signal) electrodes (See Drawing 1, item 20, in Detailed Description See paragraph 0008); a storage medium from which  $N$ -bit display data are simultaneously read out for each of the plurality of segment (signal) electrodes (See Drawing 2, item 100, in Detailed Description See paragraph 0012); a decoder circuit having a plurality of sub-decoders and that divides the  $N(8)$ -bit display data simultaneously read out from the storage medium into  $(N/L=8/4=2)$ -bit data units, decodes the  $(N/L=8/4=2)$ -bit data units, and outputs a voltage to be applied to each of segment (signal) electrodes (See Drawings 4-5, item 134, in Detailed Description See paragraphs 0034, 0036); wherein in a first mode, the  $N=8$ -bit display data provides  $2^2=4$  display gradients for each of  $L=4$  pixels on each of the segment (signal) electrodes, and an output voltage is output from selected one of sub-decoders in each of  $A$  divided periods of one horizontal scanning period (See Drawings 6,7B, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038); in a second mode, the  $N=8$ -bit display data provides  $2=2$  display gradients for each of  $L=4$  pixels on each of the segment (signal) electrodes, and an output voltage is output from a selected one of the subdecoders every  $n=2$  horizontal scanning periods (See Drawings 6,7A, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038).

Shingo does not show for the first mode formula  $A=N/L \geq 2$ , and for second mode does not show formula  $1 \leq B = A/n$  and  $n \geq 2$ .

It would have been obvious to one of ordinary skill in the art that parameters of Shingo apparatus ( $N=8$ ,  $L=4$ ,  $n=2$ ) will satisfy both formulas  $A = 2$  and  $B = A/n = 1$  and description of both modes operation.

As to claim 8, Shingo teaches a method for driving a display comprising a plurality of pixels, each of which is located at a respective one of a plurality of intersections formed between one of a plurality of common electrodes ( 240 scanning lines) and one of a plurality of segment electrodes (320 signal lines), wherein an orientation state of an electro-optical material of each pixel is controlled by a voltage applied to it (See Drawing 1, item 10, in Detailed Description See paragraph 0008), the display driver apparatus comprising: a common electrode drive device (scanning line driver 30) that supplies a scanning signal for simultaneously selecting  $L$  (4) common (scanning) electrodes, where  $L$  is natural number and  $L \geq 2$  (display could not be made with one scanning electrode) (See Drawing 3A, item 1-4, in Detailed Description See paragraphs 0029); a segment electrode drive device (signal-line driver) that supplies a data signal to each of the plurality of segment (signal) electrodes (See Drawing 1, item 20, in Detailed Description See paragraph 0008); a storage medium from which  $N$ -bit display data are simultaneously read out for each of the plurality of segment (signal) electrodes (See Drawing 2, item 100, in Detailed Description See paragraph 0012); a decoder circuit having a plurality of sub-decoders and that divides the  $N(8)$ -bit display data simultaneously read out from the storage medium into  $(N/L=8/4=2)$ -bit data units, decodes the  $(N/L=8/4=2)$ -bit data units, and outputs a voltage to be applied to each of segment (signal) electrodes (See Drawings 4-5, item 134, in Detailed Description See paragraphs 0034, 0036); wherein in a first mode, the  $N=8$ -bit display data provides  $2^2=4$  display gradients for each of  $L=4$  pixels on each of the segment (signal)

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electrodes, and an output voltage is output from selected one of sub-decoders in each of A divided periods of one horizontal scanning period (See Drawings 6,7B, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038); in a second mode, the N=8-bit display data provides 2=2 display gradients for each of L=4 pixels on each of the segment (signal) electrodes, and an output voltage is output from a selected one of the subdecoders every n=2 horizontal scanning periods (See Drawings 6,7A, items G/D, CA, CL, in Detailed Description See paragraphs 0036-0038).

Shingo does not show for the first mode formula  $A = N/L \geq 2$ , and for second mode does not show formula  $1 \leq B = A/n$  and  $n \geq 2$ .

It would have been obvious to one of ordinary skill in the art that parameters of Shingo method (N=8, L=4, n=2) will satisfy both formulas  $A = 2$  and  $B = A/n = 1$  and description of both modes operation.

As to claim 2, Shingo teaches a terminal that selects one of the first mode and second mode (See Drawing 6, item G/D, in Detailed Description See paragraph 0036).

As to claims 3, 9, Shingo teaches an interface circuit for inputting the N-bit display data from an external source, wherein a mode selection signal for selecting one of the first mode and the second mode is input through the interface circuit (See Drawing 2, items D0-D7, G/D).

As to claims 4, 10, Shingo teaches a first mode the N-bit display data provides four display gradients for each of L pixels on each of the segment (signal) electrode (See Drawing 7B, in Detailed Description See paragraphs 0036-0038).

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As to claims 5, 11, Shingo teaches a second mode the N-bit display data provides two display gradients for each of 2L pixels on each of the segment (signal) electrode (See Drawing 7B, in Detailed Description See paragraphs 0036-0038).

As to claims 6, 7, Shingo teaches an electronic device and electro-optical device comprising a display driver apparatus (See Drawing 1, items 20, 30, in Detailed Description See paragraphs 0001-0002).

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Kim (WO 97/43750) reference disclosed super-twisted nematic LCD driving circuit adopting multiple line selection method using pulse width modulation.

### ***Telephone inquire***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a long horizontal flourish extending to the right.

**VIJAY SHANKAR  
PRIMARY EXAMINER**